

CLAIMS

What is claimed is:

1. A method of automatically managing a plurality of remote workers carrying out a variety of jobs for one or more customers, each job including a process of a set of one or more task steps and a set of units of source data, the method comprising:

storing in a database information on each remote worker including one or more task skills of the worker that define the types of task steps the worker is certified to carry out;

storing in the database information on the customers;

storing in the database information on each process, including the customer of the process, the order of carrying out the task steps of the process, how the input for each task step is obtained from the results of prior task steps in the process, and any pre-processing and post-processing required;

receiving the units of source data from the customers;

carrying out any defined pre-processing for the received source data;

storing in a task data structure information on tasks to be completed, each task defined by a task step and a unit of input for the task step;

storing in the database information on each remote worker including one or more task skills of the worker that define the types of task steps the worker is certified to carry out;

receiving requests from one or more of the remote workers for tasks;

upon receiving a task request from a remote worker, dispatching a task from the stored tasks to be completed to the remote worker according to one or more task dispatch rules;

receiving the task results from the remote workers for the task dispatched to the workers;

carrying out any defined post-processing of the task results corresponding to the tasks of a process for a unit of source data to produce result data for the unit of source data;

sending the result data to the customers;

managing the capacity of the system based on information about the stored tasks;

recruiting potential workers; and

receiving responses from one or more of the potential workers; and

screening the responding potential workers, each successfully screened potential worker becoming an applicant,

such that the recruiting is based on information about the stored tasks and occurs automatically substantially without human management.

2. A method as recited in claim 1, wherein the variety of jobs include a plurality of members of the set consisting of: data entry, telesales, voice transcription, translation, image categorization, sales lead incubation, auditing, repair of documents after OCR, photo retouching, paralegal processes, call center quality assurance, and editorial work.
3. A method as recited in claim 1, further comprising:
 - certifying applicants and workers as having one or more task skills; and
 - automatically training workers at one or more task skills.
4. A method as recited in claim 1, further comprising:
 - assessing the quality of at least some of the task results.
5. A method as recited in claim 1, wherein the recruiting includes:

placing one or more recruiting messages based on information about the stored tasks;

receiving a response from a potential worker; and

administering a screening test to the responding potential worker.

- 5 6. A system for automatically managing a plurality of remote workers carrying out a variety of jobs for one or more customers, each job including a process of a set of one or more task steps and a set of associated source data units, the system connected to a network, each worker having one or more task skills and able to communicate with the system using a worker terminal connectable to network, the system comprising:

10 a storage subsystem containing a task data structure to store tasks to be completed, each task defined by a task step and a unit of input for the task step;

a pre-processor coupled to the storage subsystem to accept units of source data from the customers and to carry out any defined pre-processing for the accepted source data;

15 a task dispatcher coupled to the network and to the task data structure to accept requests from one or more of the remote workers for tasks and to dispatch a task from the task data structure to a remote worker requesting tasks, the dispatching according to one or more task dispatch rules;

20 a task submission unit coupled to network to receive the task results from the remote workers for the task dispatched to the workers;

a post-processor coupled to the network and to the quality unit to produce result data from the task results corresponding to the tasks of a process for a unit of source data, including any defined post-processing of the task results, and to send the result data to the customer of the process;

25 a capacity manager coupled to the task dispatcher, to the task data structure, and to the evaluation unit to manage the capacity of the system based on task

load information on the tasks in the task data structure, on the available workers, and on the available worker task skills;

a certification unit coupled to the dispatcher to certify workers as having one or more task skills; and

- 5 a recruitment and screening unit coupled to the capacity manager and to the network to recruit potential workers, and to screen potential workers, each successfully screened potential worker becoming an applicant;

such that the recruiting is based on task load information on the tasks in the task data structure, on the available workers, and on the available worker task skills, and occurs automatically substantially without human management.

- 10 7. A system as recited in claim 6,
wherein the storage subsystem further includes

a database storing information on each remote worker including one or more task skills of the worker that define the types of task steps the worker is certified to carry out, information on one or more customers, and information on each process, the process information including the customer of the process, the order of carrying out the task steps of the process, how the input for each task step is obtained from the results of prior task steps in the process, and any pre-processing and post-processing required; and

- 20 a data store for storing input and output information for the tasks, and

wherein the coupling between the certification unit and each of the task dispatcher and the capacity manager is via the database.

8. A system as recited in claim 6, wherein the variety of jobs include a plurality of members of the set consisting of: data entry, telesales, voice transcription, translation,
25 image categorization, sales lead incubation, auditing, repair of documents after OCR, photo retouching, paralegal processes, call center quality assurance, and editorial work.

9. A system as recited in claim 6, further comprising:

a training unit coupled to the network, to the capacity manager, and to the certification unit to automatically train applicants and workers at one or more task skills.

10. A system for automatically managing a plurality of remote workers carrying out a variety of jobs for one or more customers, each job including a process of a set of one or more task steps and a set of associated source data units, the system connected to a network, each worker able to communicate with the system using a worker terminal connectable to network, the system comprising:

a storage subsystem containing

a database storing information on each remote worker including one or more task skills of the worker that define the types of task steps the worker is certified to carry out, information on one or more customers, and information on each process, the process information including the customer of the process, the order of carrying out the task steps of the process, how the input for each task step is obtained from the results of prior task steps in the process, and any pre-processing and post-processing required;

a task data structure to store tasks to be completed, each task defined by a task step and a unit of input for the task step; and

a data store for storing input and output information for the tasks;

a mechanism coupled to the storage subsystem to accept units of source data from the customers;

a pre-processor coupled to the storage subsystem to carry out any defined pre-processing for the accepted source data;

a mechanism coupled to the network to accept requests from one or more of the remote workers for tasks;

a task dispatcher coupled to the storage subsystem and to the network for dispatching a task from the task data structure to a remote worker requesting tasks, the dispatching according to one or more task dispatch rules;

a task submission unit coupled to the storage subsystem to receive the task results from the remote workers for the task dispatched to the workers;

a post-processor coupled to the storage subsystem to carry out any defined post-processing of the task results corresponding to the tasks of a process for a unit of source data to produce result data for the unit of source data;

a mechanism coupled to the storage subsystem to send the result data to the customers;

a capacity manager coupled to the storage subsystem to manage the capacity of the system based on task load information on the tasks in the task data structure, on the available workers, and on the available worker task skills; and

a recruitment/screening unit coupled to the storage subsystem to recruit potential workers, and to screen potential workers, each successfully screened potential worker becoming an applicant.

11. A system as recited in claim 10, wherein the variety of jobs include a plurality of members of the set consisting of: data entry, telesales, voice transcription, translation, image categorization, sales lead incubation, auditing, repair of documents after OCR, photo retouching, paralegal processes, call center quality assurance, and editorial work.

12. A system as recited in claim 10, further comprising:

a quality unit coupled to the storage subsystem to assess the quality of at least some of the task results;

an evaluation unit coupled to the storage subsystem to evaluate the workers who carried out the tasks that produced the task results whose quality is assessed;

a training unit coupled to the storage subsystem to train applicants and workers at one or more task skills; and

a certification unit coupled to the storage subsystem to certify applicants and workers as having one or more task skills.

13. A method of automatically managing a plurality of workers carrying out a variety of jobs for one or more customers, each job including a process of a set of one or more task steps and a set of units of source data, the method comprising:

storing in a database information on each worker including one or more task skills of the worker that define the types of task steps the worker is certified to carry out;

storing in the database information on each process;

receiving the units of source data;

storing in a task data structure information on tasks to be completed, each task defined by a task step and input for the task step;

storing in the database information on each remote worker including one or more task skills of the worker that define the types of task steps the worker is certified to carry out;

dispatching a task from the stored tasks to be completed to a worker;

receiving the task result from the worker for the task dispatched to the worker after the worker completes the task; and

recruiting potential workers,

wherein the recruiting occurs automatically based on task load information about the stored tasks.

14. A method as recited in claim 13, further comprising:

managing the capacity based on the distribution of tasks in the task data structure, required task skills, and available workers having the required task skills.

15. A method as recited in claim 14, wherein managing the capacity further includes projecting the task demand and commencing the recruiting when a shortfall is predicted.

16. A method as recited in claim 13, wherein dispatching is to a remote worker via the Internet and wherein the remote worker completes the task at remote location.

5 17. A method as recited in claim 16, wherein the storing of process information includes storing information on any required pre-processing of source data and on any required post-processing, and wherein the source data receiving includes carrying out any pre-processing required for the source data according to the stored process information, and wherein the producing result data further includes carrying out any post-processing required according to the stored process information.

10 18. A method as recited in claim 13, wherein the dispatching occurs upon receiving a task request from the worker.

19. A method as recited in claim 13, wherein the task request is received from the worker automatically when the worker logs on.

15 20. A method as recited in claim 13, wherein the variety of jobs include a plurality of members of the set consisting of: data entry, telesales, voice transcription, translation, image categorization, sales lead incubation, auditing, repair of documents after OCR, photo retouching, paralegal processes, call center quality assurance, and editorial work.

21. A method as recited in claim 13, further comprising:

20 certifying workers as having one or more task skills.

22. A method as recited in claim 21, wherein the dispatching occurs according to a set of one or more dispatch rules.

23. A method as recited in claim 22, wherein the dispatch rules includes that the worker a task is assigned to must have the task skill for the task step.

25 24. A method as recited in claim 22, wherein the dispatching further occurs to satisfy one or more task dispatch objectives.

25. A method as recited in claim 22, wherein the task data structure is part of the database and wherein the dispatching includes forming a query on the database.

26. A method as recited in claim 25, wherein the database is a relational database including a set of tables.

5 27. A method as recited in claim 21, further comprising:

screening the responding potential workers by administering a screening test.

28. A method as recited in claim 27, further comprising:

automatically training workers at one or more task skills.

29. A method as recited in claim 13, wherein the recruiting includes:

10 placing one or more recruiting messages based on information about the stored tasks;

receiving a response from a potential worker; and

administering a screening test to the responding potential worker.

15 30. A method as recited in claim 13, wherein responding potential workers becomes applicants after passing the screening test, the method further comprising:

deciding to hire a particular applicant;

contacting the particular applicant;

receiving from the particular applicant an expression of interest and resume information; and

20 checking resume information.

31. A method as recited in claim 30, wherein the checking of resume information includes creating a task in the task data structure for dispatching to a worker.

32. A system for automatically managing a plurality of workers carrying out a variety of jobs for one or more customers, each job including a process of a set of one or more task

steps and a set of associated source data units, the system connected to a network, each worker having one or more task skills and able to communicate with the system using a worker terminal connectable to network, the system comprising:

a storage subsystem containing a task data structure to store tasks to be completed, each task defined by a task step and input for the task step from source data received from the customer;

a task dispatcher coupled to the network and to the task data structure to dispatch a task from the task data structure to an available worker;

a task submission unit coupled to network to receive the task result from the worker for the task dispatched to the worker; a

a capacity manager coupled to the task dispatcher and to the task data structure to manage the capacity of the system based on task load information on the tasks in the task data structure;

a recruitment unit coupled to the capacity manager and to the network to recruit potential workers;

such that the recruitment unit recruits workers automatically substantially without human upon instruction from the capacity manager.

33. A system as recited in claim 32, wherein the recruitment unit further is to screen potential workers, each successfully screened potential worker becoming an applicant.

34. A system as recited in claim 33, further comprising:

a training unit coupled to the network and to the capacity manager to automatically train workers at one or more task skills; and

a certification unit coupled to the capacity manager and the training unit to automatically certify workers as having one or more task skills.

35. A system as recited in claim 32, further comprising:

a certification unit coupled to the capacity manager and the training unit to automatically certify workers as having one or more task skills

wherein the storage subsystem further includes

a database storing information on each remote worker including one or more task skills of the worker that define the types of task steps the worker is certified to carry out, information on one or more customers, and information on each process, the process information including the customer of the process, the order of carrying out the task steps of the process, how the input for each task step is obtained from the results of prior task steps in the process, and any pre-processing and post-processing required; and

a data store for storing input and output information for the tasks, and

wherein the coupling between the certification unit and each of the task dispatcher and the capacity manager is via the database.

36. A system as recited in claim 35, further comprising:

a post-processor coupled to the network and to the quality unit to produce result data from the task results of the tasks a process and to send the result data to the customer of the process.

37. A system as recited in claim 35, wherein dispatching is to a remote worker via the Internet and wherein the remote worker completes the task at remote location.

38. A system as recited in claim 32, wherein the dispatching occurs upon receiving a task request from the worker.

39. A system as recited in claim 32, wherein the task request is received from the worker automatically when the worker logs on.

40. A system as recited in claim 32, wherein the variety of jobs include a plurality of members of the set consisting of: data entry, telesales, voice transcription, translation, image categorization, sales lead incubation, auditing, repair of documents after OCR, photo retouching, paralegal processes, call center quality assurance, and editorial work.

41. A system as recited in claim 35, wherein the task data structure is part of the database.

42. A system as recited in claim 35, wherein the data store is part of the database.

43. A system as recited in claim 35, wherein the database is a relational database including a set of tables.

5 44. A system as recited in claim 35, wherein the dispatching occurs according to a set of one or more dispatch rules.

45. A system as recited in claim 44, wherein the dispatch rules includes that the worker a task is assigned to must have the task skill for the task step.

10 46. A system as recited in claim 44, wherein the dispatching further occurs to satisfy one or more task dispatch objectives.

47. A system as recited in claim 44, wherein the task data structure is part of the database and wherein the dispatching includes forming a query on the database.

48. A system as recited in claim 47, wherein the database is a relational database including a set of tables.

15 49. A system as recited in claim 35, wherein the recruitment unit further screens the potential workers by administering a screening test.

50. A system as recited in claim 35, wherein the recruiting of the recruitment unit includes:

20 placing one or more recruiting messages based on information about the stored tasks;

receiving a response from a potential worker; and

administering a screening test to the responding potential worker.

51. A system as recited in claim 35, wherein responding potential workers becomes applicants after passing the screening test, and wherein the recruiting of the recruitment unit further includes:

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deciding to hire a particular applicant;

contacting the particular applicant;

receiving from the particular applicant an expression of interest and resume information; and

5 checking resume information.

52. A system as recited in claim 51, wherein the checking of resume information includes creating a task in the task data structure for dispatching to a worker.

53. A system for automatically managing a plurality of workers carrying out a variety of jobs for one or more customers, each job including a process of a set of one or more task steps and a set of units of source data, the method comprising:

10 a storage means containing:

 a database for storing information on each process and information on each worker including one or more task skills of the worker that define the types of task steps the worker is certified to carry out, and

15 a task data structure for storing information on tasks to be completed, each task defined by a task step and input for the task step;

 means for receiving the units of source data;

 means for dispatching a task from the stored tasks to be completed to a worker;

20 means for receiving the task result from the worker for the task dispatched to the worker after the worker completes the task;

 means for managing the capacity of the system based on task load information about the stored tasks; and

 means for recruiting potential workers based on the task load information.

54. A system as recited in claim 53, wherein the system is coupled to the Internet and wherein the dispatching means dispatches to a remote worker via the Internet and wherein the remote worker completes the task at remote location.
55. A system as recited in claim 53, wherein the dispatching means dispatches upon
5 receiving a task request from the worker.
56. A system as recited in claim 53, wherein the task request is received from the worker automatically when the worker logs on to the system.
57. A system as recited in claim 53, wherein the variety of jobs include a plurality of
10 members of the set consisting of: data entry, telesales, voice transcription, translation, image categorization, sales lead incubation, auditing, repair of documents after OCR, photo retouching, paralegal processes, call center quality assurance, and editorial work.
58. A carrier medium carrying computer readable code segments to instruct one or more
15 processors of a processing system to carry out a method of automatically managing a plurality of workers carrying out a variety of jobs for one or more customers, each job including a process of a set of one or more task steps and a set of units of source data, the medium comprising:
- one or more code segments to instruct the one or more processors to store in a
database information on each remote worker and on each process, the worker
information including one or more task skills of the worker that define the types
20 of task steps the worker is certified to carry out;
- one or more code segments to instruct the one or more processors to store in a
task data structure information on tasks to be completed, each task defined by a
task step and input for the task step corresponding to source data from the
customer of the process of the task step;
- 25 one or more code segments to instruct the one or more processors to dispatch a
task from the stored tasks to be completed to a worker;

one or more code segments to instruct the one or more processors to accept task result from the worker for the task dispatched to the worker;

one or more code segments to instruct the one or more processors to manage capacity the capacity of the system based on task load information on the stored tasks; and

one or more code segments to instruct the one or more processors to recruit potential workers based on the task load information.

59. A carrier medium as recited in claim 58, wherein dispatching is to a remote worker via the Internet and wherein the remote worker completes the task at remote location.

60. A carrier medium as recited in claim 58, wherein the dispatching occurs upon receiving a task request from the worker.

61. A carrier medium as recited in claim 58, wherein the task request is received from the worker automatically when the worker logs on.

62. A carrier medium as recited in claim 58, wherein the variety of jobs include a plurality of members of the set consisting of: data entry, telesales, voice transcription, translation, image categorization, sales lead incubation, auditing, repair of documents after OCR, photo retouching, paralegal processes, call center quality assurance, and editorial work.

63. A carrier medium as recited in claim 58, wherein managing the capacity further includes projecting the task demand based on the distribution of tasks in the task data structure, required task skills, and available workers having the required task skills and commencing the recruiting when a shortfall is predicted.

64. A computer implemented method of automatically managing one or more human workers carrying out variety of processes, each process to manipulating source data to produce result data, the process including a set of one or more task steps, each task step having an input corresponding to the source data and when completed on the input resulting in a corresponding task result, the method comprising for each process:

receiving units of source data from a customer; and

for each unit of source data

for each task step of the set for the unit of source data;

dispatching the task step and its corresponding input unit to a
worker; and

receiving from the worker, after the worker carries out the
dispatched task step on the input unit, the task result
corresponding to the dispatched task step and input unit;

the method further comprising:

recruiting potential workers,

wherein the recruiting occurs automatically based on task load information about the
stored tasks,

wherein each worker is certified to have one or more task skills,

wherein each task step requires a corresponding task skill, and

wherein the dispatching of any task step occurs automatically substantially without
human intervention to a worker who is certified to have the corresponding task skill of
the task step.

65. A method as recited in claim 64, wherein the variety of processes include a plurality
of members of the set consisting of: data entry, telesales, voice transcription, translation,
image categorization, sales lead incubation, auditing, repair of documents after OCR,
photo retouching, paralegal processes, call center quality assurance, and editorial work.

66. A method as recited in claim 64, wherein the task step dispatching is from a server
computer system over a network to a remote worker, and wherein the worker carries out
the task step at a location remote from the server computer system.

67. A method as recited in claim 66, wherein the dispatching occurs upon receiving a task request from the worker.

68. A method as recited in claim 66, wherein the task request is received from the worker automatically when the worker logs on.

5 69. A method as recited in claim 66, wherein the source data and the result data is provided in electronic form.

70. A method as recited in claim 69, further comprising, for each unit of source data,
generating the result data for the unit of source data from one or more of the
task results corresponding to the task steps of the set; and

10 sending the result data for the unit of source data to the customer.

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